

## **REMARKS**

### **I. Status of the Claims:**

Claims 1-15 and 17-44 were pending prior to this submission. The Examiner objected to claims 18, 25 and 42-43 as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Therefore, regardless of the statement on page 4, section 7 of the Office Action that claims 1-44 stand rejected under 35 U.S.C. §103(a), Applicants believe that only claims 1-15, 17, 19-24, 26-41 and 44 were rejected by the Examiner in the Final Office Action.

Claims 1, 29, 38 and 40-41 have been amended herein. In addition, claim 44 has been canceled herein without prejudice or disclaimer. No new matter has been introduced, and thus, entry and consideration is respectfully requested.

### **II. Examiner Interview:**

Applicants would like to thank the Examiner for setting aside time to conduct an Examiner Interview on December 20, 2010. Terminology that was relied upon by the Examiner in the reference was discussed, along with a proposed amendment to claim 1. With respect to the disputed terminology, the Examiner considered Applicants' arguments and replied with his own viewpoint. The Examiner further stated that it appeared the proposed amendment to claim 1 may traverse the standing §103 rejection. Applicants greatly appreciate the feedback provided by the Examiner during the Interview, and have considered this feedback in preparing this response.

### **III. Allowable Subject Matter:**

The Examiner objected to claims 18, 25, 42 and 43 as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicants acknowledge the indication of allowable subject matter in at least claims 18, 25, 42 and 43, and reserve the right to amend the claims later in the prosecution.

**IV. Response to 35 U.S.C. §103 Rejection:**

Claims 1-15, 17, 19-24, 26-41 and 44 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Maja Sliskovic, Signal Processing Algorithm for OFDM Channel With Impulse Noise (hereafter, “Maja”) and Digital Video Broadcasting (DVB), framing structure, channel coding and modulation for digital terrestrial television, ETSI EN 300 744 V1.1.1, January 1002, Cover and pp. 2-49 (hereafter, “ETSI”). In particular, the Examiner alleges that the above claims are obvious in view of the combined teachings of the Maja and ETSI. The Examiner has also incorporated Benitz (US 2003/0071750, hereafter “Benitz”) via the Response to Arguments for the teaching that auto-correlation and covariance may be used interchangeably.

Reconsideration of the present application is respectfully requested in view of the claim amendments and remarks presented herein. For example, amended claim 1 now recites:

1. (Currently Amended) A method, comprising:
  - detecting a presence of at least one impulse interference within a multi-carrier signal,
  - blanking samples where significant amount of the impulse noise caused by the at least one impulse interference is present to obtain a signal with blanking,
  - determining an estimate of the signal with blanking,
  - determining carrier correction values, which carrier correction values are based on deviations of certain carrier values compared to prior known information and the blanking, wherein determining carrier correction values comprises estimating a covariance function of the deviations; and
  - influencing the estimate by the carrier correction values to obtain a representation of a desired signal.

Support for amended claim 1 may be found in the previously pending claims in that it is asserted that the amended claim is merely a clarification of the previous claim language. In the amendments to claim 1 Applicants have further clarified that, in the claimed embodiment of the present invention, estimating a covariance function of the deviations is employed in the carrier correction value determination process, not in determination of prior known information.

Initially, Applicants respectfully assert that autocorrelation is not analogous to covariance. It is alleged that the two terms can be used interchangeably, and relies upon Benitz for support. While a relationship exists between autocorrelation and covariance, Applicants respectfully assert that the terms are not interchangeable. In a signals context, autocorrelation refers to a cross-correlation of a signal with (a delayed version of the signal) itself. For example, the Merriam-Webster online dictionary ([www.merriamwebster.com](http://www.merriamwebster.com)) defines autocorrelation as: *the correlation between paired values of a function of a mathematical or statistical variable taken at usually constant intervals that indicates the degree of periodicity of the function.* Moreover, McGraw-Hill Dictionary of Scientific and Technical Terms, 6th edition, ISBN 0-07-042313-X defines an autocorrelation function as: *For a specified function  $f(t)$ , the average value of the product  $f(t)f(t - \tau)$ , where  $\tau$  is a time-delay parameter; more specifically, the limit as  $T$  approaches infinity of  $1/(2T)$  times the integral from  $-T$  to  $T$  of  $F(t)f(t - \tau)dt$ .* See also, for example, the Wikipedia entry on autocorrelation (<http://en.wikipedia.org/wiki/Autocorrelation>).

In contrast, covariance is a measure of similarity between two signals or variables (as suggested by the prefix “co”). For example, the Merriam-Webster on-line dictionary gives the following definition of the term covariance. *1: the expected value of the product of the deviations of two random variables from their respective means 2: the arithmetic mean of the products of the deviations of corresponding values of two quantitative variables from their respective means.* Moreover, the McGraw-Hill Dictionary of Scientific and Technical Terms defines a covariance as: *A measurement of the tendency of two random variables,  $X$  and  $Y$ , to vary together, given by the expected value of the variable  $(X - X[OB])(Y - Y[OB])$ , where  $X[OB]$  and  $Y[OB]$  are the expected values of the  $X$  and  $Y$ , respectively.* See also, for example, the Wikipedia covariance entry (<http://en.wikipedia.org/wiki/Covariance>) for computing covariance.

In view of the above, Applicants respectfully assert that a clear distinction exists between these concepts in that autocorrelation is directed to a single variable or signal, whereas covariance is directed to multiple variables or signals, and considering these concepts as equivalents is incorrect based on this fundamental difference.

In regard to the Maja reference, autocorrelation is only mentioned in section 3 (pg. 223, col. 1 to pg. 224 col. 1). This section of Maja discusses determining signal samples that are corrupted by impulse noise, and states that the detection of noise and determination of impulse noise and its position [in the received signal], amplitude, power, auto-correlation function, spectrum of the received signal, or combination thereof can be analyzed. Maja suggests that analysis of auto-correlation function may be used as part of the detection of corrupted samples in a received signal, but what Maja actually uses for this purpose is an approach based combination of spectrum analysis and power calculation method (e.g., pg. 223, section 3, items 1 and 2 and pg. 224, equations (6) to (8)). Maja states that analysis of auto-correlation function can be used in detection of signal samples corrupted by impulse noise, but does not provide any detail regarding how the auto-correlation analysis would be utilized.

Moreover, even if one were to maintain that autocorrelation and covariance were interchangeable, the Maja reference does not recite or imply that an autocorrelation function would be somehow involved in any other part of the method aside from the detection of signal samples corrupted by impulse noise. In particular, there is no teaching or suggestion in the reference to utilize auto-correlation in the determination of carrier correction values in the manner explicitly set forth in amended claim 1 (except with respect to covariance functions).

In view of the above, Applicants respectfully assert that at least amended claim 1 is distinguishable from the cited references, taken alone or in combination. The other pending independent claims have been amended in a manner similar to claim 1, and are likewise asserted to be distinguishable. Other pending claims not specifically discussed above are distinguishable at least for depending from the pending independent claims. Therefore, Applicants respectfully request that the 35 U.S.C. §103(a) rejections to the pending claims now be withdrawn.

**CONCLUSION**

Based on the foregoing amendments and remarks, Applicants respectfully request reconsideration, withdrawal of the claim objections/rejections and allowance of this application.

**AUTHORIZATION**

The Commissioner is hereby authorized to charge any additional fees which may be required for consideration of this Amendment to Deposit Account No. 504827, Order No. 1004289-198US(4208-4226).

In the event that an extension of time is required, or which may be required in addition to that requested in a petition for an extension of time, the Commissioner is requested to grant a petition for that extension of time which is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to Deposit Account No. 504827, Order No. 1004289-198US(4208-4226).

Respectfully submitted,  
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By:



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